

ACTIVE MATRIX TYPE LIQUID CRYSTAL DISPLAY DEVICE AND ITS PRODUCTION

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Abstract

PROBLEM TO BE SOLVED: To provide a device which is uniform in white color tones, is wide in the range of a visual field angle and with which the visual field angle equivalent to the visual field angle of a cathode ray tube is embodied and image quality is improved by forming a liquid crystal layer in such a manner that this layer has the initial orientation directions of liquid crystal molecules in two directions within one pixel.

SOLUTION: The liquid crystal layer LC is so formed as to have the initial orientation directions of the liquid crystal molecules in the two directions within one pixel. The liquid crystal layer LC has positive dielectric constant anisotropy and the angles ϕ_{LC1} , ϕ_{LC2} formed by the initial orientation directions of the liquid crystal molecules in the two directions and an impressed electric field direction are respectively $90 \text{ deg.} + \alpha$, $90 \text{ deg.} - \alpha$. The angles ϕ_{P1} , ϕ_{P2} formed by the transmission axes of the polarized light of two sheets of polarizing plates POL1, 2 and the impressed electric field direction are respectively 90 deg. , 0 deg. . The liquid crystal layer LC, otherwise, has negative dielectric constant anisotropy and the angles ϕ_{LC1} , ϕ_{LC2} are respectively $0 \text{ deg.} + \alpha$, $180 \text{ deg.} - \alpha$. The angles ϕ_{P1} , ϕ_{P2} are respectively specified to 90 deg. , 0 deg. . Where, the absolute value of α is confined to $\leq 2.5 \text{ deg.}$.

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